

C³ wherein said melted amorphous silicon layer and said polycrystalline silicon layer of which upper portion is melted exist at the same time during at least a certain time period of the formation of the polycrystalline silicon layer.

19. (Amended) A method of forming a polycrystalline silicon layer, comprising:

forming an amorphous silicon layer on a substrate;

melting said amorphous silicon layer using a laser beam so as to form a polycrystalline silicon layer; and

re-melting only an upper portion of said polycrystalline silicon layer using a laser beam so as to re-crystallize said upper portion,

wherein said melted amorphous silicon layer and said polycrystalline silicon layer of which upper portion is re-melted exist at the same time during at least a certain time period of the formation of the polycrystalline silicon layer.

REMARKS

At the outset, the Examiner is thanked for the thorough review and consideration of the subject application. The Final Office Action of March 27, 2003 has been received and contents carefully reviewed.

By this amendment, Applicant amends claims 1, 7, 18 and 19. Accordingly, claims 1-19 are currently pending in the present application. Reexamination and reconsideration of the application are respectfully requested.

In the Office Action, the Examiner rejected claims 1-12 and 18-19 under 35 U.S.C. §103(a) as being unpatentable over Kuwabara et al. (JP 409283441) in further view of the the

Related Art described at pages 3-5 and FIGS. 2-5 of the present application ("Related Art"). Applicant respectfully traverses this rejection.

Claim 1 is allowable over the cited reference in that claim 1 recites a combination of elements including, for example, "melting only an upper portion of the polycrystalline silicon layer using the laser beam with the mask thereby recrystallizing the upper portion of the polycrystalline silicon layer, wherein at least some of the melting of the upper portion of the polycrystalline silicon layer is performed as the amorphous silicon layer is melted." None of the cited references, singly or in combination, teaches or suggests at least this feature of the claimed invention. Accordingly, Applicant respectfully submits that claim 1 and claims 2-6, which depend therefrom, are allowable over the cited references.

Claim 7 is allowable over the cited reference in that claim 7 recites a combination of elements including, for example, "re-melting only an upper portion of said polycrystalline silicon layer using a laser beam so as to re-crystallize said upper portion, wherein at least some of said re-melting of said upper portion of said polycrystalline silicon layer is performed as said amorphous silicon layer is melted." None of the cited references, singly or in combination, teaches or suggests at least this feature of the claimed invention. Accordingly, Applicant respectfully submits that claim 7 and claims 8-12, which depend therefrom, are allowable over the cited references.

Claim 18 is allowable over the cited reference in that claim 18 recites a combination of elements including, for example, "melting only an upper portion of the polycrystalline silicon layer using the laser beam with the mask thereby recrystallizing the upper portion of the polycrystalline silicon layer, wherein said melted amorphous silicon layer and said polycrystalline silicon layer of which upper portion is melted exist at the same time during at least a certain time period of the formation of the polycrystalline silicon layer." None of the cited references, singly or in combination, teaches or suggests at least this feature of the claimed invention. Accordingly, Applicant respectfully submits that claim 18 is allowable over the cited references.


Claim 19 is allowable over the cited reference in that claim 19 recites a combination of elements including, for example, "re-melting only an upper portion of said polycrystalline silicon layer using a laser beam so as to re-crystallize said upper portion, wherein said melted amorphous silicon layer and said polycrystalline silicon layer of which upper portion is re-melted exist at the same time during at least a certain time period of the formation of the polycrystalline silicon layer." None of the cited references, singly or in combination, teaches or suggests at least this feature of the claimed invention. Accordingly, Applicant respectfully submits that claim 19 is allowable over the cited references.

Applicant believes the foregoing response place the application in condition for allowance and early, favorable action is respectfully solicited. If the Examiner deems that a telephone conference would further the prosecution of this application, the Examiner is invited to call the undersigned attorney at the telephone number (202) 496 - 7500. All correspondence should continue to be sent to the below-listed address. 47

If these papers are not considered timely filed by the Patent and Trademark Office, then a petition is hereby made under 37 C.F.R. §1.136, and any additional fees required under 37 C.F.R. §1.136 for any necessary extension of time, or any other fees required to complete the filing of this response, may be charged to Deposit Account No. 50-0911. Please credit any overpayment to deposit Account No. 50-0911.

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Respectfully submitted,

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MARKED UP VERSION OF THE AMENDED CLAIMS

1. (Twice Amended) A method of forming a polycrystalline silicon layer, comprising:

forming an amorphous silicon layer on a substrate;

melting the amorphous silicon layer using a laser beam thereby forming the polycrystalline silicon layer [by adopting]using a mask; and

melting only an upper portion of the polycrystalline silicon layer using the laser beam [by adopting]with the mask thereby recrystallizing the upper portion of the polycrystalline silicon layer,

wherein at least some of [said]the melting of [said]the upper portion of [said]the polycrystalline silicon layer is performed as [said]the amorphous silicon layer is melted.

7. (Twice Amended) A method of forming a polycrystalline silicon layer, comprising:

forming an amorphous silicon layer on a substrate;

melting said amorphous silicon layer using a laser beam so as to form a polycrystalline silicon layer; and

re-melting only an upper portion of said polycrystalline silicon layer using a laser beam so as to re-crystallize said upper portion,

wherein at least some of said re-melting of said upper portion of said polycrystalline silicon layer is performed as said amorphous silicon layer is melted.

18. (Amended) A method of forming a polycrystalline silicon layer, comprising:

forming an amorphous silicon layer on a substrate;

melting the amorphous silicon layer using a laser beam thereby forming the polycrystalline silicon layer [by adopting]using a mask; and

melting only an upper portion of the polycrystalline silicon layer using the laser beam [by adopting]with the mask thereby recrystallizing the upper portion of the polycrystalline silicon layer,

wherein said melted amorphous silicon layer and said polycrystalline silicon layer of which upper portion is melted exist at the same time during at least a certain time period of the formation of the polycrystalline silicon layer.

19. (Amended) A method of forming a polycrystalline silicon layer, comprising:

forming an amorphous silicon layer on a substrate;

melting said amorphous silicon layer using a laser beam so as to form a polycrystalline silicon layer; and

re-melting only an upper portion of said polycrystalline silicon layer using a laser beam so as to re-crystallize said upper portion,

wherein said melted amorphous silicon layer and said polycrystalline silicon layer of which upper portion is re-melted exist at the same time during at least a certain time period of the formation of the polycrystalline silicon layer.